

# Modeling of the complete life cycle of raw materials in the mathematical apparatus of problem-oriented modification of color networks Petri-DN-networks

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## Abstract

© Published under licence by IOP Publishing Ltd. The article considers the issues of increasing the efficiency of waste management through mathematical modeling and description of technological processes of the full life cycle of raw materials. The practical result is the proposed network model of the process of transformation of raw materials in the course of a complete life cycle, using the example of wood in the technological process for the production of MDF panels.

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## References

- [1] Piterson J 1984 The theory of Petri nets and modeling of systems Trans. with eng. Moscow: Mir. 264
- [2] Basyrov I R 2001 Scientific notes of KFEI (Kazan) Expansion of Petri nets, problem-oriented for modeling multi-assortment production systems 177-82
- [3] Basyrov I R and Akhunov D N 2005 Petri nets in modeling and production management Socio-economic and technical systems: Online electronic scientific and technical journal No 8
- [4] Basyrova D I, Matrenina O M, Kirpichnikov A P, Shipina T and Kostochko A V 2011 On one approach to the simulation of the functioning of discretely continuous chemical-technological systems Bulletin of the Kazan Technological University 146-51
- [5] Azimov Yu I and Gilmanshin I R 2016 Modeling of technological processes of heat supply, as a tool for assessing the state of objects of the property fund and engineering networks of enterprises Innovative machine-building technologies, equipment and materials - 2016 (MNTK "IMTOM-2016") Materials of the International Scientific and Technical Conference 244-48
- [6] Gilmanshin I R, Azimov Yu I, Savdur S N and Gilmanshina S I 2017 Modeling of multilevel structures of power supply in modified networks Petri - DN-networks Innovative machinebuilding technologies, equipment and materials - 2017 Materials of the VIII International Scientific and Technical Conference 212-16
- [7] Gilmanshina S I, Gilmanshin I R, Sagitova R N and Galeeva A I 2016 The feature of scientific explanation in the teaching of chemistry in the environment of new information of school students' developmental education International Journal of Environmental and Science Education 11 349-58
- [8] Gilmanshin I, Kashapov N, Gilmanshina S and Galeeva A 2016 IOP Conference Series: Materials Science and Engineering 134 012007
- [9] Azimov Y, Gilmanshin I and Gilmanshina S 2016 IOP Conference Series: Materials Science and Engineering 134 012003